STATE OF NORTH CAROLINA, DEPARTMENT OF ADMINISTRATION
DIVISION OF PURCHASE AND CONTRACT
AGENCY SPECIFIC TERM CONTRACT

Contract Title:	STANDBY POWER SUPPLY GENERATORS 230 and 250 KW
Bid (Contract) Number:	201401403
Commodity Code:	765-00
Effective Dates:	December 9, 2014 through December 8, 2017-Non-Renewable
P&C Administrator:	Bahaa Jizi
Phone:	919-807-4520
E-Mail:	Bahaa.jizi@doa.nc.gov
Last Updated:	

Items on Contract

Product Description	Price/UOM	Contractor
See Attached Specifications		

Contractor

Contractor Information	
Company	National Power Corp
Address	4541 Preslyn Drive
City, State, Zip	Raleigh, NC 27616
URL	
Contractor Contact	
Name	John Lowe
Phone	919-790-1672
E-Mail	John.lowe@natpow.com

Taxes

Prices shown do not include North Carolina sales or use taxes.

Delivery

The contractor will complete delivery within **90 consecutive calendar days** after receipt of purchase order. Prices listed in this contract include transportation charges to this specific location. If you should require delivery to another location in the state, please contact the vendor to see if there may be any add-on or deduct for your particular location.

Transportation Charges

All goods shall be delivered FOB DESTINATION. Prices herein include shipping.

WARRANTY:

Bidder warrants that equipment furnished on this bid will be new and of good material and workmanship. Defective parts found to be free of negligence or accident will be replaced free of charge for 24 months from respective dates the machines are put in operations. Such replacement is to include all parts, labor, freight, and travel to site where equipment is down (statewide locations). In addition, any specific provisions in the manufacturer's standard warranty that exceed the above requirement become part of the warranty for this contract.

Bidder is advised that deviations taken to the above warranty paragraph may cause nullification of your bid. Bidder specifically agrees to above warranty paragraph by signature of the “Execution of Bid” contained herein.

BID No. **201401403** BIDDER: NPC

FURNISH AND DELIVER:

ITEM	QTY.	UOM	DESCRIPTION	UNIT COST	TOTAL EXTENDED COST
1.	1 Generac	Each	Generator: 230 KW, 120/240 V, 1 Phase, Diesel Powered with Aluminum 76dB Sound Attenuating Enclosure. SD230	$49,524.00	$49,524.00
2.	1 Thomson	Each	Automatic Transfer Switch, 1000A, 3 Pole. TS873A1000B	$11,115.00	$11,115.00

TOTAL ALL ITEMS $ 60,639.00

National Power Corp

STATE OF NORTH CAROLINA

DEPARTMENT OF ADMINISTRATION
DIVISION OF PURCHASE AND CONTRACT
1305 MAIL SERVICE CENTER
RALEIGH, NC 27699-1305

IMPORTANT ADDENDUM

November 13, 2014

FAILURE TO RETURN THIS ADDENDUM IN ACCORDANCE WITH INSTRUCTIONS MAY SUBJECT YOUR BID TO REJECTION ON THE AFFECTED ITEM(S):

BID Number: 201401403

ADDENDUM Number: 01
PURCHASER: **Bahaa Jizi**

COMMODITY: **STANDBY POWER SUPPLY GENERATORS 230 and 250 KW**
USING AGENCY: **DEPARTMENT - Transportation**
OPENING DATE/TIME: **December 4, 2014 @ 2:00**

INSTRUCTIONS:

Below are the original specifications that were omitted from the posted bid solicitation. They must be submitted with the bid.

NCDOT will be responsible for the installation of the generator(s).

Price list for possible combinations and for possible future purchases.

During the course of this contract NCDOT may elect to purchase any single unit or combination of units from the matrixes below.

Bidder is requested to fill in these price matrixes:

DIESEL POWERED UNITS: Generac

kW Rating	120/240V, 1Phase	120/240V or 120/208V, 3Phase	277/480V, 3 phase	Aluminum 76dB Sound Attenuating Enclosure
230 SD230	44,680.00	44,680.00	41,369.00	14644.00
250 SD250	45,329.00	45,329.00	43,818.00	13800.00

AUTOMATIC TRANSFER SWITCHES: Thomson Technology

	2 pole	3 pole
100A	2600.00	2600.00
150A	3000.00	3000.00
200A	3200.00	3200.00
250A	3500.00	3500.00
400A	4400.00	4400.00
600A	6700.00	6700.00
800A	7600.00	7600.00
1000A	11,115.00	11,115.00

1200A	11,800.00	11,800.00

2101_12

July 20, 2012

GENERATOR SET SPECIFICATIONS

Section 1: GENERAL

1. DESCRIPTION OF SYSTEM

a. Provide a Standby power system to supply electrical power in event of failure of normal supply, consisting of a liquid cooled engine, an AC alternator and system controls with all necessary accessories for a complete operating system, including but not limited to the items as specified hereinafter. Yes ☐ No ☐

b. Provide manual or automatic transfer switch as described elsewhere in this specification so that the system comes on-line, and on restoration of utility power retransfer load to normal power, shuts down the generator and returns to readiness for another operating cycle. Yes ☐ No ☐

2. REQUIREMENTS OF REGULATORY AGENCIES

a. An electric generating system, consisting of a prime mover, generator, governor, coupling and all controls, must have been tested, as a complete unit, on a representative engineering prototype model of the equipment to be sold. Yes ☐ No ☐

b. The transfer switch must be UL listed for use in emergency systems. Yes ☐ No ☐

c. The generator set must conform to applicable National Electrical Code and applicable inspection authorities. Yes ☐ No ☐

d. The generator set must be UL 2200 listed as a stationary engine generator assembly. Yes ☐ No ☐

3. MANUFACTURER QUALIFICATIONS

a. This system shall be manufactured by a manufacturer who has been regularly engaged in the production of engine-alternator sets, manual and automatic transfer switches, and associated controls, thereby identifying one source of supply and responsibility. Yes ☐ No ☐

b. To be classified as a manufacturer, the builder of the generator set must manufacture, at minimum, engines or alternators. Yes ☐ No ☐

c. The manufacturer shall have printed literature and brochures describing

the standard series specified, not a one of a kind fabrication.

Yes ☑ No ☐

Section 2: ENGINE-GENERATOR SET

1. Engine

a. The prime mover shall be a liquid cooled engine of 4-cycle design. Engine(s) shall meet all applicable EPA requirements for engine type and size at time of delivery.

Yes ☑ No ☐

b. The engine is to be cooled with a unit mounted radiator, fan, water pump, and closed coolant recovery system providing visual diagnostic means to determine if the system is operating with a normal engine coolant level. The radiator shall be designed for operation in 110 degrees Fahrenheit, 43 degrees Celsius ambient temperature.

Yes ☑ No ☐

c. The intake air filter with replaceable element must be mounted on the unit. Full pressure lubrication shall be supplied by a positive displacement lube oil pump. The engine shall have a replaceable oil filter with internal bypass and replaceable elements. Engine coolant and oil drain extensions must be provided to outside of the mounting base for cleaner and more convenient engine servicing.

Yes ☑ No ☐

d. The engine shall have a battery charging DC alternator with a transistorized voltage regulator.

Yes ☑ No ☐

e. Engine speed shall be governed by mechanical governor to maintain alternator frequency within +/- 5% from no load to full load alternator output. Steady state regulation is to be 0.5%.

Yes ☑ No ☐

f. Sensing elements to be located on the engine for low oil pressure shutdown, high coolant temperature shutdown, low coolant level shutdown, overspeed shutdown and overcrank shutdown. These sensors are to be connected to the control panel using a wiring harness with the following features: wire number labeling on each end of the wire run for easy identification, a molded rubber boot to cover the electrical connection on each sensor to prevent corrosion and all wiring to be run in flexible conduit for protection from the environment and any moving objects.

Yes ☑ No ☐

g. The manufacturer shall supply its recommended stainless steel, flexible connector to couple the engine exhaust manifold to the exhaust system.

Yes ☑ No ☐

h. The engine shall have a unit mounted, thermostatically controlled water jacket heater to aid in quick starting. It will be of adequate wattage as recommended by the engine manufacturer. The contractor shall provide proper branch circuit from normal utility power source.

Yes ☑ No ☐

i. The diesel fuel system shall include a double walled (with tank rupture alarm), UL approved, stub up, base mounted fuel tank, sufficient for minimum of 24 hour full load operation. It shall have the structural integrity to support the engine-generator set. Minimum features shall include all welded construction, a lockable fuel filler cap, fuel gauge, low fuel level alarm, fuel line check valve and fittings for fuel supply, return, fill and vent.

This tank must be supplied by the engine-generator set manufacturer and be installed before shipment.

Yes ☑ No ☐

2. ALTERNATOR

a. Shall have 12 Lead Winding with capability of producing full kw at single or 3 phase operation.

Yes ☑ No ☐

b. The alternator shall be a 4-pole revolving field type. The stator shall be direct connected to insure permanent alignment. The generator shall meet temperature rise standards for Class "H" insulation, operate at Class "F" standards, 130 degrees C at standby rating for extended life. All leads must be extended into an AC connection panel. The alternator shall be protected by internal thermal overload protection and an automatic reset field circuit breaker.

Yes ☑ No ☐

c. One step load acceptance shall be 100% of engine-generator set nameplate rating and meet the requirements of NFPA 110 paragraph 5-13.2.6.

Yes ☑ No ☐

d. A solid state voltage regulator designed and built by the engine-generator set manufacturer must be used to control output voltage by varying the exciter magnetic field to provide + or - 1% regulation during stable load conditions. Should an extremely heavy load drop the output frequency, the regulator shall have a voltage drop of 4 Volts/Hertz to maximize motor starting capability.

Yes ☑ No ☐

e. The voltage regulator must contain a limiting circuit to prevent output voltage surges in excess of 125% of rated voltage during generator set operation. On loss or near loss of the voltage sensing signal, the voltage regulator must be capable of shutting down to prevent an overvoltage condition from occurring.

Yes ☑ No ☐

f. A NEMA 1 panel that is an integral part of the generator set must be provided to allow the installer a convenient location in which to make electrical output connections. An isolated neutral lug must be included by the generator set manufacturer to insure proper sizing.

Yes ☑ No ☐

g. The electric plant shall be mounted with vibration isolators on a welded steel base that shall permit suitable mounting to any level surface.

Yes ☑ No ☐

h. A thermal magnetic UL listed main line circuit breaker must be mounted in the AC connection panel. The line side connections are to be made at the factory. A system utilizing a manual reset field circuit breaker and current transformers is unacceptable.

Yes ☑ No ☐

3. CONTROLS

a. All engine alternator controls and instrumentation shall be designed, built, wired, tested and shock mounted in a NEMA 1 enclosure to the engine-generator set by the manufacturer. It shall contain panel lighting, a fused

DC circuit to protect the controls and a +/-5% voltage adjusting control. This panel must be able to be rotated 90 degrees in either direction for correct installation. Yes ☑ No ☐

b. The engine-generator set shall contain a complete 2 wire automatic engine start-stop control which starts the engine on closing contacts and stop the engine on opening contacts. A cyclic cranking limiter shall be provided to open the starting circuit after eight attempts if the engine has not started within that time. Engine control modules must be solid state plug-in type for high reliability and easy service. Yes ☑ No ☐

c. The panel shall include; digital meters to monitor AC voltage, AC current and AC frequency with a phase selector switch, an emergency stop switch, an audible alarm, battery charger fuse, and a programmable engine control and monitoring module. Yes ☑ No ☐

d. The programmable module shall include: a manual, off, auto switch; digital display to indicate 1) Not In Auto, 2) Alarm Active, 3) Generator Running, 4) Generator Ready; a data entry keypad and a digital display panel. Yes ☑ No ☐

e. **The module will display all pertinent unit parameters including Generator Status:**
   a. Current unit status in real time. Yes ☑ No ☐

f. **Instrumentation: Real time readouts of the following values:**
   a. Oil pressure Yes ☑ No ☐
   b. Coolant temperature Yes ☑ No ☐
   c. Fuel level (where applicable) Yes ☑ No ☐
   d. DC battery voltage Yes ☑ No ☐
   e. Run time hours Yes ☑ No ☐

g. **Generator Commands:**
   a. Current engine start/stop status Yes ☑ No ☐

h. **Alarm Status: Current alarm(s) conditions:**
   a. High or low AC voltage Yes ☑ No ☐
   b. High or low battery voltage Yes ☑ No ☐
   c. High or low frequency Yes ☑ No ☐
   d. Low or pre-low oil pressure Yes ☑ No ☐
   e. Low water level Yes ☑ No ☐
   f. Low water temperature Yes ☑ No ☐
   g. High and pre-high engine temperature Yes ☑ No ☐
   h. High, low and critical low fuel levels Yes ☑ No ☐
   i. Overcrank Yes ☑ No ☐

j. Overspeed — Yes ☑ No ☐

k. Unit not in "Automatic Mode" — Yes ☑ No ☐

l. Eight (8) user programmable digital channels — Yes ☑ No ☐

m. Four (4) user programmable analog channels — Yes ☑ No ☐

i. **Alarm Log:**

a. Memory of last Twenty (20) alarm events. — Yes ☑ No ☐

j. **Operating Parameters:**

a. Access to and manipulation of the current operating parameters and alarm limits. — Yes ☑ No ☐

k. **Software Information:**

a. Version information and module display test function. — Yes ☑ No ☐

l. The panel must be accessible by PC based software via either standard RS232, RS485 or modem. The software must display the module face, be updated in real time and allow for complete access to all module functions. Communication output and its software must be fully compatible and allow for incorporation into an existing control program. — Yes ☑ No ☐

Section 3: AUTOMATIC TRANSFER SWITCH

1. GENERAL

a. The automatic transfer switch shall be listed by Underwriter's Laboratory, Standard 1008 with circuit breaker protection. Transfer switch shall be service rated with over-current protection (fusible). Representative production samples of the transfer switch supplied shall have demonstrated through tests the ability to withstand at least 10,000 mechanical operation cycles. One operation cycle is the electrically operated transfer from normal to emergency and back to normal. Wiring must comply with NEC table 373-6(b). The manufacturer shall furnish schematic and wiring diagrams for the particular automatic transfer switch and a typical wiring diagram for the entire system. Transfer switch to have LCD digital readout with 7-day programmable timer (Thompson Electronics TSC 800 Series or pre-approved equal). — Yes ☑ No ☐

2. RATINGS & PERFORMANCE

a. The automatic transfer switch shall be rated for continuous operation in ambient temperatures of -20 Degrees Fahrenheit (-30 Degrees Celsius) to +140 Degrees Fahrenheit (+60 Degrees Celsius). Main power switch contacts shall be rated for 600 Volt AC minimum. The transfer switch

supplied shall have a minimum withstand and closing rating when fuse protected of 200,000 amperes.

Yes ☑ No ☐

3. CONSTRUCTION

a. The transfer switch shall be double throw construction, positively electrically and mechanically interlocked to prevent simultaneous closing and mechanically held in both normal and emergency positions. Independent break before make action shall be used to positively prevent dangerous source to source connections. The transfer switch shall be approved for manual operation.

Yes ☑ No ☐

b. The transfer switch electrical actuator shall have an independent disconnect means to disable the electrical operation during manual switching. Maximum electrical transfer time in either direction shall be 160 milliseconds, exclusive of time delays. Main switch contacts shall be high pressure silver alloy contacts to resist burning and pitting for long life operation.

Yes ☑ No ☐

c. There shall be two SPDT, 10 ampere, 250 volt auxiliary switches on both normal and emergency sides, operated by the transfer switch. Full rated neutral bar with lugs for normal, emergency and load conductors shall be provided inside the cabinet.

Yes ☑ No ☐

d. Enclosure shall be a NEMA 3R rain proof enclosure.

Yes ☑ No ☐

4. CONTROLS

a. All control equipment shall be mounted on the inside of the cabinet door in a metal lockable enclosure. The solid state voltage sensors and time delay modules shall be plug-in circuit boards with silver or gold contacts for ease of service.

Yes ☑ No ☐

b. A solid state under-voltage sensor shall monitor all phases of the normal source and provide adjustable ranges for field adjustments for specific application needs. Pick-up and drop-out settings shall be adjustable from a minimum of 70% to a maximum of 95% of nominal voltage. A utility sensing interface shall be used, stepping down line voltage to 24VAC, helping to protect the printed circuit board from voltage spikes and increasing personnel safety when troubleshooting.

Yes ☑ No ☐

c. Signal the engine-generator set to start in the event of a power interruption. A set of contacts shall close to start the engine and open for engine shutdown. A solid state adjustable time delay shall delay this signal to avoid nuisance start-ups on momentary voltage dips or power outages.

Yes ☑ No ☐

d. Transfer the load to the engine-generator set after it reached proper voltage and frequency. A solid state time delay (adjustable, 5 seconds-3 minutes) shall delay this transfer to allow the engine-generator to warm-up before application of load. There shall be a switch to bypass this warm-up timer when immediate transfer is required.

Yes ☑ No ☐

e. Retransfer the load to the line after normal power restoration. A return to utility timer (adjustable, 1-30 minutes) shall delay this transfer to avoid short term normal power restoration. Yes ☑ No ☐

f. The operating power for transfer and retransfer shall be obtained from the source to which the load is being transferred. Controls shall provide an automatic retransfer of the load from emergency to normal if the emergency source fails with the normal source available. Yes ☑ No ☐

g. Signal the engine-generator to stop after the load retransfers to normal. A solid state engine cool-down timer (adjustable, 1-30 minutes) shall permit the engine to run unloaded to cool-down before shutdown. Yes ☑ No ☐

h. Provide an engine minimum run timer (adjustable, 5-30 minutes) to ensure an adequate engine run period. Yes ☑ No ☐

i. Provide a solid state plant exercise clock to start the generator set exercise period. Clock shall have a one week cycle and be powered by the load side of the transfer switch. A battery must be supplied to maintain the circuit board clock operation when the load side of the transfer switch is de-energized. Include a switch to select if the load will transfer to the engine-generator set during the exercise period. Yes ☑ No ☐

j. Provide indicators to identify the transfer switch position in either UTILITY or EMERGENCY. Yes ☑ No ☐

k. Provide manual operating handle to allow for manual transfer. This handle must be mounted inside the lockable enclosure so accessible only by authorized personnel. Yes ☑ No ☐

l. Provide a safety disconnect switch to prevent load transfer and automatic engine start while performing maintenance. Yes ☑ No ☐

Section 5: ADDITIONAL REQUIREMENTS

1. UNIT ACCESSORIES

The following equipment is to be installed at the engine-generator set manufacturer's facility:

a. Provide a 2 amp automatic float battery charger manufactured by the engine-generator set supplier. It is to be of a solid state design and self-regulating to prevent overcharging the system battery. The battery charger is to be factory installed on the generator set. A battery charger mounted in the transfer switch is unacceptable. Yes ☑ No ☐

b. A heavy duty, lead acid battery set shall be provided by the generator set manufacturer of adequate voltage and amperage capacity to start and operate the engine. Provide all inter-cell and connecting battery cables as required. Yes ☑ No ☐

c. The unit will provide means for attaching a flexible coupling between the engine radiator and the building cooling air discharge duct. Yes ☑ No ☐

d. Weather protective enclosure: The engine-generator set shall be factory enclosed in an aluminum enclosure constructed with corner posts, uprights

and headers. The roof shall aid in the runoff of water and include a drip edge. The enclosure is to have large, hinged doors to allow access to the engine, alternator and control panel. The material shall be 080" thick, type 3003 aluminum. The doors must lift off without the use of tools. Each door will have lockable hardware with identical keys. The enclosure to be finished to manufacturers specifications.

Yes ☑ No ☐

e. Exhaust silencer shall be provided of the size as recommended by the manufacturer and shall be of critical grade. The silencer shall be mounted within the weather protective enclosure with solid brackets. It shall be connected to the engine with a flexible, seamless, stainless steel exhaust connection. A rain cap will terminate the exhaust pipe. All components must be properly sized to assure operation without excessive backpressure when installed.

Yes ☑ No ☐

2. APPLIED STANDARDS

a. The unit shall be UL2200 listed

Yes ☑ No ☐

3. FACTORY TESTING

Before shipment of the equipment, the engine-generator set shall be tested under rated load for performance and proper functioning of control and interfacing circuits. Tests shall include:

a. Verifying all safety shutdowns are functioning properly.

Yes ☑ No ☐

b. Single step load pick-up per NFPA 110-1996, Paragraph 5-13.2.6.

Yes ☑ No ☐

c. Transient and voltage dip responses and steady state voltage and speed (frequency) checks.

Yes ☑ No ☐

4. STARTUP AND CHECKOUT

The supplier of the electric generating plant and associated items covered herein shall provide factory trained technicians to checkout the completed installation and to perform an initial startup inspection to include:

a. Ensuring the engine starts (both hot and cold) within the specified time.

Yes ☑ No ☐

b. Verification of engine parameters within specification.

Yes ☑ No ☐

c. Set no load frequency and voltage.

Yes ☑ No ☐

d. Test all automatic shutdowns of the engine-generator.

Yes ☑ No ☐

e. Perform a load test of the electric plant ensuring full load frequency and voltage are within specification by using building load.

Yes ☑ No ☐

ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME